

CLAIM AMENDMENT

Claims 1-175 (canceled).

176. (Original) A method of producing a collinear beam of electromagnetic energy having two constituent parts, comprising:

[a] providing a substantially collimated primary beam of electromagnetic energy having a predetermined range of wavelengths and randomly changing orientations of a chosen component of electromagnetic wave field vectors;

[b] resolving the substantially collimated primary beam of electromagnetic energy into a substantially collimated primary first resolved beam of electromagnetic energy having substantially a first selected predetermined orientation of a chosen component of the electromagnetic wave field vectors and a substantially collimated primary second resolved beam of electromagnetic energy having substantially a second selected predetermined orientation of a chosen component of the electromagnetic wave field vectors;

[c] separating each of the substantially collimated primary resolved beams of electromagnetic energy into two or more substantially collimated separate beams of electromagnetic energy, each of the substantially collimated separate beams of electromagnetic energy having a selected predetermined orientation of a chosen component of electromagnetic wave field vectors;

[d] altering the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of a plurality of portions of each of the substantially collimated separate beams of electromagnetic energy by passing the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy through a respective one of a plurality of altering means whereby the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy is altered in response to a stimulus means by applying a signal means to the stimulus means in a predetermined manner as the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy passes through the respective one of the plurality of means for altering the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors;

[e] [i] combining the substantially collimated altered separate beams of electromagnetic energy of the primary first resolved beam of electromagnetic energy into a first substantially collimated single collinear beam of electromagnetic energy without substantially changing the altered selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy, and

[ii] combining the substantially collimated altered separate beams of electromagnetic energy of the primary second resolved beam of electromagnetic energy into a second substantially collimated single collinear beam of electromagnetic energy without substantially changing the altered selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy;

[f] [i] resolving from the first substantially collimated single collinear beam of electromagnetic energy a substantially collimated first resolved beam of electromagnetic energy having substantially the first selected predetermined orientation of a chosen component of electromagnetic wave field vectors and a substantially collimated second resolved beam of electromagnetic energy having substantially the second selected predetermined orientation of a chosen component of electromagnetic wave field vectors, and

[ii] resolving from the second substantially collimated single collinear beam of electromagnetic energy a substantially collimated first resolved beam of electromagnetic energy having substantially the first selected predetermined orientation of a chosen component of electromagnetic wave field vectors and a substantially collimated second resolved beam of electromagnetic energy having substantially the second selected predetermined orientation of a chosen component of electromagnetic wave field vectors; and

[g] merging one of the resolved beams of electromagnetic energy from the first substantially collimated single collinear beam of electromagnetic energy with one of the other resolved beams of electromagnetic energy from the second substantially collimated single collinear beam of electromagnetic energy into a substantially collimated third single collinear beam of electromagnetic energy.

177. (Original) A method as described in claim 176 wherein step [b] further includes resolving the primary beam into first and second resolved beams in which the first selected predetermined orientation of the chosen component of the electromagnetic wave field vectors has the same selected predetermined orientation of the chosen component of the electromagnetic wave field vectors as that of the second selected predetermined orientation of the chosen component of the electromagnetic wave field vectors.

178. (Original) A method as described in claim 176 wherein step [b] further includes resolving the primary beam into first and second resolved beams in which the first selected predetermined orientation of the chosen component of the electromagnetic wave field vectors has the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors different from the second selected predetermined orientation of the chosen component of the electromagnetic wave field vectors.

179. (Original) A method as described in claim 176 wherein step [g] further includes the merging of the resolved beams in which the plurality of portions of one of the merged beams has a different selected predetermined orientation of a chosen component of electromagnetic wave field vectors as that of the plurality of portions of the other merged beam.

180. (Original) A method as described in claim 176 wherein step [g] further includes merging of the resolved beams in which each merged beam has its plurality of portions parallel and noncoincident to the plurality of portions as that of the other merged beam.

181. (Original) A method as described in claim 176 wherein step [g] further includes merging of the resolved beams in which each merged beam has its plurality of portions parallel and partially coincident to the plurality of portions as that of the other merged beam.

182. (Original) A method as described in claim 176 wherein step [g] further includes merging of the resolved beams in which each merged beam has its plurality

of portions parallel and simultaneous to the plurality of portions as that of the other merged beam.

183. (Canceled).

184. (Canceled).

185. (Currently Amended) A method as described in claim 176 wherein step [g] further includes merging of the resolved beams in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electromagnetic wave field vectors as that of the plurality of portions of the other merged beam.

186. (Currently Amended) A method as described in claim 176 wherein step [g] further includes merging of the resolved beams in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electromagnetic wave field vectors as that of the plurality of portions of the other merged beam and further includes each merged beam having its plurality of portions parallel and noncoincident to the plurality of portions as that of the other merged beam.

187. (Currently Amended) A method as described in claim 176 wherein step [g] further includes merging of the resolved beams in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electromagnetic wave field vectors as that of the plurality of portions of the other merged beam and further includes each merged beam having its plurality of portions parallel and partially coincident to the plurality of portions as that of the other merged beam.

188. (Currently Amended) A method as described in claim 176 wherein step [g] further includes merging of the resolved beams in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electromagnetic wave field vectors as that of the plurality of portions of the other merged beam and further includes each merged beam

having its plurality of portions parallel and simultaneous to the plurality of portions as that of the other merged beam.

189. (Original) A method as described in claim 176 further comprising the step of passing the substantially collimated third single collinear beam of electromagnetic energy to a projection means.

190. (Original) A method of producing a collinear beam of light having two constituent parts, comprising:

- [a] providing a substantially collimated primary beam of light having a predetermined range of wavelengths and randomly changing orientations of a chosen component of electric field vectors;

- [b] resolving the substantially collimated primary beam of light into a substantially collimated primary first resolved beam of light having substantially a first selected predetermined orientation of a chosen component of the electric field vectors and a substantially collimated primary second resolved beam of light having substantially a second selected predetermined orientation of a chosen component of the electric field vectors;

- [c] separating each of the substantially collimated primary resolved beams of light into two or more substantially collimated separate beams of light, each of the substantially collimated separate beams of light having a selected predetermined orientation of a chosen component of electric field vectors;

- [d] altering the selected predetermined orientation of the chosen component of the electric field vectors of a plurality of portions of each of the substantially collimated separate beams of light by passing the plurality of portions of each of the substantially collimated separate beams of light through a respective one of a plurality of altering means whereby the selected predetermined orientation of the chosen component of the electric field vectors of the plurality of portions of each of the substantially collimated separate beams of light is altered in response to a stimulus means by applying a signal means to the stimulus means in a predetermined manner as the plurality of portions of each of the substantially collimated separate beams of light passes through the respective one of the plurality of means for altering the selected predetermined orientation of the chosen component of the electric field vectors;

[e] [i] combining the substantially collimated altered separate beams of light of the primary first resolved beam of light into a first substantially collimated single collinear beam of light without substantially changing the altered selected predetermined orientation of the chosen component of the electric field vectors of the plurality of portions of each of the substantially collimated separate beams of light, and

[ii] combining the substantially collimated altered separate beams of light of the primary second resolved beam of light into a second substantially collimated single collinear beam of light without substantially changing the altered selected predetermined orientation of the chosen component of the electric field vectors of the plurality of portions of each of the substantially collimated separate beams of light;

[f] [i] resolving from the first substantially collimated single collinear beam of light a substantially collimated first resolved beam of light having substantially a first selected predetermined orientation of a chosen component of electric field vectors and a substantially collimated second resolved beam of light having substantially a second selected predetermined orientation of a chosen component of electric field vectors, and

[ii] resolving from the second substantially collimated single collinear beam of light a substantially collimated first resolved beam of light having substantially a first selected predetermined orientation of a chosen component of electric field vectors and a substantially collimated second resolved beam of light having substantially a second selected predetermined orientation of a chosen component of electric field vectors; and

[g] merging one of the resolved beams of light from the first substantially collimated single collinear beam of light with one of the other resolved beams of light from the second substantially collimated single collinear beam of light into a substantially collimated third single collinear beam of light.

191. (Original) A method as described in claim 190 wherein step [b] further includes resolving the primary beam in which the first selected predetermined orientation of the chosen component of the electric field vectors has the same selected predetermined orientation of the chosen component of the electric field vectors as that of the second selected predetermined orientation of the chosen component of the

electric field vectors.

192. (Original) A method as described in claim 190 wherein step [b] further includes resolving the primary beam in which the first selected predetermined orientation of the chosen component of the electric field vectors has the selected predetermined orientation of the chosen component of the electric field vectors different from the second selected predetermined orientation of the chosen component of the electric field vectors.

193. (Original) A method as described in claim 190 wherein step [g] further includes resolving the primary beam in which the plurality of portions of one of the merged beams has a different selected predetermined orientation of a chosen component of electric field vectors from that of the plurality of portions of the other merged beam.

194. (Original) A method as described in claim 190 wherein step [g] further includes each merged beam having its plurality of portions parallel and noncoincident to the plurality of portions as that of the other merged beam.

195. (Original) A method as described in claim 190 wherein step [g] further includes resolving the primary beam in which each merged beam has the plurality of portions parallel and partially coincident to the plurality of portions of the other merged beam.

196. (Original) A method as described in claim 190 wherein step [g] further includes resolving the primary beam in which each merged beam has its plurality of portions parallel and simultaneous to the plurality of portions of the other merged beam.

197. (Canceled).

198. (Canceled).

199. (Currently Amended) A method as described in claim 190 wherein step [g]

further includes resolving the primary beam in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electric field vectors as that of the plurality of portions of the other merged beam.

200. (Currently Amended) A method as described in claim 190 wherein step [g] further includes resolving the primary beam in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electric field vectors as that of the plurality of portions of the other merged beam and further includes each merged beam having its plurality of portions parallel and noncoincident to the plurality of portions of the other merged beam.

201. (Currently Amended) A method as described in claim 190 wherein step [g] further includes resolving the primary beam in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electric field vectors as that of the plurality of portions of the other merged beam and further includes each merged beam having its plurality of portions parallel and partially coincident to the plurality of portions of the other merged beam.

202. (Currently Amended) A method as described in claim 190 wherein step [g] further includes resolving the primary beam in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electric field vectors as that of the plurality of portions of the other merged beam and further includes each merged beam having its plurality of portions parallel and simultaneous to the plurality of portions of the other merged beam.

203. (Original) A method as described in claim 190 further comprising the step of passing the substantially collimated third single collinear beam of light to a projection means.

204. (Original) A method as described in claim 190 wherein step [a] includes



producing an initial beam of ultraviolet.

205. (Original) A system of producing a collinear beam of electromagnetic energy having two constituent parts, comprising:

[a] means for providing a substantially collimated primary beam of electromagnetic energy having a predetermined range of wavelengths and having randomly changing orientations of a chosen component of electromagnetic wave field vectors;

[b] means for resolving the substantially collimated primary beam of electromagnetic energy into a substantially collimated primary first resolved beam of electromagnetic energy having substantially a first selected predetermined orientation of a chosen component of the electromagnetic wave field vectors and a substantially collimated primary second resolved beam of electromagnetic energy having substantially a second elected predetermined orientation of a chosen component of the electromagnetic wave field vectors;

[c] means for separating each of the substantially collimated primary resolved beams of electromagnetic energy into two or more substantially collimated separate beams of electromagnetic energy, each of the substantially collimated separate beams of electromagnetic energy having a selected predetermined orientation of a chosen component of electromagnetic wave field vectors;

[d] means for altering the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of a plurality of portions of each of the substantially collimated separate beams of electromagnetic energy by passing the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy through a respective one of a plurality of altering means whereby the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy is altered in response to a stimulus means by applying a signal means to the stimulus means in a predetermined manner as the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy passes through the respective one of the plurality of means for altering the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors;

[e] [i] means for combining the substantially collimated altered separate beams of electromagnetic energy of the primary first resolved beam of electromagnetic energy into a first substantially collimated single collinear beam of electromagnetic energy without substantially changing the altered selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy, and

[ii] means for combining the substantially collimated altered separate beams of electromagnetic energy of the primary second resolved beam of electromagnetic energy into a second substantially collimated single collinear beam of electromagnetic energy without substantially changing the altered selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy;

[f] [i] means for resolving from the first substantially collimated single collinear beam of electromagnetic energy a substantially collimated first resolved beam of electromagnetic energy having substantially a first selected predetermined orientation of a chosen component of electromagnetic wave field vectors and a substantially collimated second resolved beam of electromagnetic energy having substantially a second selected predetermined orientation of a chosen component of electromagnetic wave field vectors, and

[ii] means for resolving from the second substantially collimated single collinear beam of electromagnetic energy a substantially collimated first resolved beam of electromagnetic energy having substantially a first selected predetermined orientation of a chosen component of electromagnetic wave field vectors and a substantially collimated second resolved beam of electromagnetic energy having substantially a second selected predetermined orientation of a chosen component of electromagnetic wave field vectors; and

[g] means for merging one of the resolved beams of electromagnetic energy from the first substantially collimated single collinear beam of electromagnetic energy with one of the other resolved beams of electromagnetic energy from the second substantially collimated single collinear beam of electromagnetic energy into a substantially collimated third single collinear beam of electromagnetic energy.

206. (Original) A system as described in claim 205 wherein the means for resolving the substantially collimated primary beam includes means for resolving the substantially collimated primary beam into substantially collimated primary first and second resolved beams in which the first selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the first resolved beam has the same selected predetermined orientation of the chosen component of the electromagnetic wave field vectors as that of the second selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the second resolved beam.

207. (Original) A system as described in claim 205 wherein the means for resolving the substantially collimated primary beam includes means for resolving the substantially collimated primary beam into substantially collimated primary first and second resolved beams in which the first selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the first resolved beam has the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors different from the second selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the second resolved beam.

208. (Original) A system as described in claim 205 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which the plurality of portions of one of the merged beams has a different selected predetermined orientation of a chosen component of electromagnetic wave field vectors from that of the plurality of portions of the other merged beam.

209. (Original) A system as described in claim 205 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which each merged beam has its plurality of portions parallel and noncoincident to the plurality of portions of the other merged beam.

210. (Original) A system as described in claim 205 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which each merged beam has its plurality of portions parallel and partially coincident to the

plurality of portions of the other merged beam.

211. (Original) A system as described in claim 205 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which each merged beam has its plurality of portions parallel and simultaneous to the plurality of portions of the other merged beam.

212. (Canceled).

213. (Canceled).

214. (Currently Amended) A system as described in claim 205 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electromagnetic wave field vectors as that of the plurality of portions of the other merged beam.

215. (Currently Amended) A system as described in claim 205 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electromagnetic wave field vectors as that of the plurality of portions of the other merged beam and each merged beam has its plurality of portions parallel and noncoincident to the plurality of portions of the other merged beam.

216. (Currently Amended) A system as described in claim 205 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electromagnetic wave field vectors as that of the plurality of portions of the other merged beam and each merged beam has its plurality of portions parallel and partially coincident to the plurality of portions of the other merged beam.

217. (Original) A system of producing a collinear beam of light having two constituent parts, comprising:

[a] means for providing a substantially collimated primary beam of light having a predetermined range of wavelengths and having randomly changing orientations of a chosen component of electric field vectors;

[b] means for resolving the substantially collimated primary beam of light into a substantially collimated primary first resolved beam of light having substantially a first selected predetermined orientation of a chosen component of the electric field vectors and a substantially collimated primary second resolved beam of light having substantially a second selected predetermined orientation of a chosen component of the electric field vectors;

[c] means for separating each of the substantially collimated primary resolved beams of light into two or more substantially collimated separate beams of light, each of the substantially collimated separate beams of light having a selected predetermined orientation of a chosen component of electric field vectors;

[d] means for altering the selected predetermined orientation of the chosen component of the electric field vectors of a plurality of portions of each of the substantially collimated separate beams of light by passing the plurality of portions of each of the substantially collimated separate beams of light through a respective one of a plurality of altering means whereby the selected predetermined orientation of the chosen component of the electric field vectors of the plurality of portions of each of the substantially collimated separate beams of light is altered in response to a stimulus means by applying a signal means to the stimulus means in a predetermined manner as the plurality of portions of each of the substantially collimated separate beams of light passes through the respective one of the plurality of means for altering the selected predetermined orientation of the chosen component of the electric field vectors;

[e] [i] means for combining the substantially collimated altered separate beams of light of the primary first resolved beam of light into a first substantially collimated single collinear beam of light without substantially changing the altered selected predetermined orientation of the chosen component of the electric field vectors of the plurality of portions of each of the substantially collimated separate beams of light, and

[ii] means for combining the substantially collimated altered separate beams of light of the primary second resolved beam of light into a second substantially collimated single collinear beam of light without substantially changing the altered selected predetermined orientation of the chosen component of the electric field vectors of the plurality of portions of each of the substantially collimated separate beams of light;

[f] [i] means for resolving from the first substantially collimated single collinear beam of light a substantially collimated first resolved beam of light having substantially a first selected predetermined orientation of a chosen component of electric field vectors and a substantially collimated second resolved beam of light having substantially a second selected predetermined orientation of a chosen component of electric field vectors, and

[ii] means for resolving from the second substantially collimated single collinear beam of light a substantially collimated first resolved beam of light having substantially a first selected predetermined orientation of a chosen component of electric field vectors and a substantially collimated second resolved beam of light having substantially a second selected predetermined orientation of a chosen component of electric field vectors; and

[g] means for merging one of the resolved beams of light from the first substantially collimated single collinear beam of light with one of the other resolved beams of light from the second substantially collimated single collinear beam of light into a substantially collimated third single collinear beam of light.

218. (Currently Amended) A system as described in claim 217 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which the plurality of portions of one of the merged beams has the substantially ~~same~~ different selected predetermined orientation of a chosen component of electric field vectors as that of the plurality of portions of the other merged beam and each merged beam has its plurality of portions parallel and simultaneous to the plurality of portions of the other merged beam.

219. (Original) A system as described in claim 217 wherein the means for resolving the substantially collimated primary beam includes means for resolving the substantially collimated primary beam into substantially collimated primary first and

second resolved beams in which the first selected predetermined orientation of the chosen component of the electric field vectors of the first resolved beam has the same selected predetermined orientation of the chosen component of the electric field vectors as that of the second selected predetermined orientation of the chosen component of the electric field vectors of the second resolved beam.

220. (Original) A system as described in claim 217 wherein the means for resolving the substantially collimated primary beam includes means for resolving the substantially collimated primary beam into substantially collimated primary first and second resolved beams in which the first selected predetermined orientation of the chosen component of the electric field vectors of the first resolved beam has the selected predetermined orientation of the chosen component of the electric field vectors different from the second selected predetermined orientation of the chosen component of the electric field vectors of the second resolved beam.

221. (Original) A system as described in claim 217 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which the plurality of portions of one of the merged beams has a different selected predetermined orientation of a chosen component of electric field vectors from that of the plurality of portions of the other merged beam.

222. (Original) A system as described in claim 217 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which each merged beam has its plurality of portions parallel and noncoincident to the plurality of portions of the other merged beam.

223. (Original) A system as described in claim 217 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which each merged beam has its plurality of portions parallel and partially coincident to the plurality of portions of the other merged beam.

224. (Original) A system as described in claim 217 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which each merged beam has its plurality of portions parallel and simultaneous to the

plurality of portions of the other merged beam.

225. (Canceled).

226. (Canceled).

227. (Currently Amended) A system as described in claim 217 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electric field vectors as that of the plurality of portions of the other merged beam.

228. (Currently Amended) A system as described in claim 217 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electric field vectors as that of the plurality of portions of the other merged beam and each merged beam has its plurality of portions parallel and noncoincident to the plurality of portions of the other merged beam.

229. (Currently Amended) A system as described in claim 217 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electric field vectors as that of the plurality of portions of the other merged beam and each merged beam has its plurality of portions parallel and partially coincident to the plurality of portions of the other merged beam.

230. (Currently Amended) A system as described in claim ~~43~~217 wherein the means for merging of the resolved beams includes means for merging of the resolved beams in which the plurality of portions of one of the merged beams has the substantially ~~same~~different selected predetermined orientation of a chosen component of electric field vectors as that of the plurality of portions of the other merged beam and further includes each merged beam having its plurality of portions



parallel and simultaneous to the plurality of portions as that of the other merged beam.

231. (Original) A system as described in claim 217 further comprising means for passing the substantially collimated third single collinear beam of light to a projection means.

232. (Original) A system as described in claim 205 wherein the means for providing a substantially collimated primary beam includes providing an initial beam of ultraviolet.

Claims 233-438 (canceled).